Wetland
Studies and Solutions, Inc.

July 22, 2002

Rolf Gubler
Shenandoah National Park
3655 US Hwy 211 East
Luray, Virginia 22835

Re: Jurisdictional Determination
Weakley Hollow Access Area
Madison County, Virginia
WSSI #9030

Dear Mr. Gubler:

Enclosed is a copy of the Jurisdictional Determination (JD) from the U.S. Army Corps of Engineers verifying the delineation for the above-referenced site. This JD is valid for five years from the date of issuance (i.e., July 18, 2002).

If you have any questions, please call us at 703-631-5800. Thank you for contacting WSSI regarding this wetland delineation.

Sincerely,

WETLAND STUDIES AND SOLUTIONS, INC.

Stephen C. Rottenborn, Ph.D.
Senior Environmental Scientist

Enclosure

Scr\L:\9030\admin\072202gubler-JD

14088-M Sullyfield Circle, Chantilly, Virginia 20151
Phone 703.631.5800 Fax 703.631.5804
Web Page http://www.wetlandstudies.com E-mail contactus@wetlandstudies.com

DEPARTMENT OF THE ARMY
NORFOLK DISTRICT, CORPS OF ENGINEERS
FORT NORFOLK, 803 FRONT STREET
NORFOLK, VIRGINIA 23510-1096

REPLY TO
ATTENTION OF:

CENAO-TS-G

July 18, 2002

Northern Virginia Regulatory Section
(Unnamed tributaries to the Hughes River)
02-C0134-45

Stephen C. Rottenborn, Ph.D.
Wetland Studies & Solutions, Inc.
14088-M Sullyfield Circle
Chantilly, Virginia 20151

Dear Mr. Rottenborn:

This is in reference to your request for verification of the wetland delineation performed on the 8-acre "Weakley Hollow Access Area" located on Route 600 in Madison County, Virginia.

Based on your supporting documentation supplied to us dated June 5, 2002, it has been determined by the Corps of Engineers that your jurisdictional wetland delineation utilizing the Corps 1987 Wetland Delineation Manual is confirmed.

The wetlands are waters of the United States and are part of a tributary system to interstate waters (33 C.F.R. 328.3(a)). The waters' tributaries meet the Corps' definition of waters of the United States and are part of a tributary system to interstate waters (33 C.F.R. 328.3(a)).

This wetlands jurisdictional delineation is valid for a period of five (5) years from the date of this letter unless new information warrants revision of the delineation before the expiration date. A copy of your delineation report is on file in this office.

Should you have questions, please call Mr. Hal Wiggins at (540) 548-2517 at our Fredericksburg Field Office.

WE RECOMMEND THAT A COPY OF THE WETLAND DELINEATION BE SENT TO THE MADISON COUNTY DEPARTMENT OF PLANNING AND THE VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY.

Sincerely,

Bruce F. Williams
Chief, Northern Virginia
Regulatory Section

Copies Furnished:

County of Madison Department of Planning, Madison
Virginia Department of Environmental Quality, Woodbridge
Shenandoah National Park, Luray

INITIAL PROFFERED PERMIT (STANDARD PERMIT OR LETTER OF PERMISSION) AND PROCESS AND APPROVED JURISDICTIONAL DETERMINATION AND PROCESS AND PRELIMINARY JURISDICTIONAL DETERMINATION AND PROCESS

Applicant: SHENANDOAH NAT. PARK	File Number: 02-C0139-45	Date: July 18, 2002
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (Standard Permit or Letter of permission)	A
	PROFFERED PERMIT (Standard Permit or Letter of permission)	B
	PERMIT DENIAL	C
X	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION II: The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://usace.army.mil/inet/functions/cw/cecwo/reg or Corps regulations at 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the district engineer. Your objections must be received by the district engineer within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the district engineer will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the district engineer will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the district engineer for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.
- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice, means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.
- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the division engineer. This form must be received by the division engineer within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further instruction. Also you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL or OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact: U.S. Army Corps of Engineers, Norfolk District Fredericksburg Field Office Attn.: Hal Wiggins 1420 Central Park Blvd., Suite 210 Fredericksburg, Virginia 22404 (757) 441-7794 or email: harold.j.wiggins@USACE.army.mil	If you any additional have questions regarding this decision and/or the appeal process you may contact: U.S. Army Corps of Engineers, Norfolk District Fredericksburg Field Office Attn.: Hal Wiggins 1420 Central Park Blvd., Suite 210 Fredericksburg, Virginia 22404 (757) 441-7794 or email: harold.j.wiggins@USACE.army.mil

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15 day notice of any site investigation, and will have the opportunity to participate in all site investigations.

_____ Signature of appellant or agent.	Date:	Telephone number:

Wetland Studies and Solutions, Inc.

June 5, 2002

VIA FEDERAL EXPRESS

Hal Wiggins
U.S. Army Corps of Engineers
1420 Central Park Blvd.
Suite 210
Fredericksburg, VA 22404

Re: Wetland Delineation
Weakley Hollow Access Area
Madison County, Virginia
WSSI #9030

Dear Mr. Wiggins:

Wetland Studies and Solutions, Inc. (WSSI) has conducted a wetland delineation on the above-referenced site. Please find enclosed two copies of WSSI's delineation report.

We would like to request a Jurisdictional Determination of this wetland delineation as soon as possible. Please contact our office to schedule a site visit at your convenience.

Sincerely,

Stephen C. Rottenborn

Stephen C. Rottenborn, Ph.D.
Senior Environmental Scientist

Enclosures

cc: Rolf Gubler, Shenandoah National Park (w/o enc.)

scr\L:\9030\admin\0605wiggins

14088-M Sullyfield Circle, Chantilly, Virginia 20151
Phone 703.631.5800 Fax 703.631.5804
Web Page http://www.wetlandstudies.com E-mail contact@wetlandstudies.com

Wetland Studies and Solutions, Inc.

June 5, 2002

VIA FEDERAL EXPRESS

Rolf Gubler
Shenandoah National Park
3655 US Hwy 211 East
Luray, Virginia 22835

Re: Wetland Delineation
Weakley Hollow Access Area (±8 acres)
Madison County, Virginia
WSSI #9030

Dear Mr. Gubler:

Per your request, Wetland Studies and Solutions, Inc. (WSSI) has delineated the boundaries of the Jurisdictional Wetlands and other Waters of the U.S. (i.e., streams) within the Weakley Hollow Access Area site, where a parking lot is proposed. Our findings are described in this letter report and are graphically depicted (as a sketch) on Attachment I.

Site Description

The ±8-acre site is located on the south side of State Route 600 approximately one mile west of the intersection of Route 600 and Route 707 in Nethers in northeastern Madison County, Virginia. Exhibit 1 is a vicinity map that shows the approximate boundaries of the study area and its general vicinity. The study area for this wetland delineation was determined by Shenandoah National Park staff present during a portion of our field work. The site is bounded on the north by State Route 600 and on the remaining sides by undeveloped forested land. The site slopes gradually toward the northeast, with three stream/wetland systems that drain northeastward toward the Hughes River off-site. This topography can be seen in Exhibit 1, as well as in the background topo on Attachment I.

Background Information

Prior to conducting field work, relevant background information was reviewed, including site topography, the USGS Old Rag Mtn., Virginia Quad Map (Exhibit 1), and Madison County Soil Survey information. Information regarding the site and the approximate locations of major aquatic features on the site, provided by Shenandoah National Park staff, was also reviewed.

14088-M Sullyfield Circle, Chantilly, Virginia 20151
Phone 703.631.5800 Fax 703.631.5804
Web Page http://www.wetlandstudies.com E-mail contactus@wetlandstudies.com

Methodology

This wetland delineation was performed pursuant to the "Corps of Engineers Wetlands Delineation Manual," Technical Report Y-87-1 (1987 Manual). The Routine On-Site Wetland Determination Method for sites more than 5 acres was used, with multiple transects performed as depicted on Attachment I. Wetland delineation field work was conducted on May 30, 2002, by Stephen C. Rottenborn, Ph.D., Laura A. B. Giese, Ph.D., and Amy Mazurkiwecz.

Photographs of the site are included in Exhibit 2. Data sheets describing representative plant communities are included as Exhibit 3. The approximate locations of data points and photos are depicted on Attachment I. Exhibit 4 is a list of plants observed while conducting the wetland delineation.

Findings

In WSSI's opinion, Jurisdictional Wetlands and other Waters of the U.S. (i.e., streams) are present on the Weakley Hollow Access Area site. Our specific findings can be summarized as follows:

A. Jurisdictional Wetlands, including Palustrine Forested (PFO), Palustrine Scrub-Shrub (PSS), and Palustrine Emergent (PEM) wetlands, are present on the site. PFO wetlands, which are dominated by trees, are present along the drainage in the southern part of the site and in the upper portions of a drainage in the central part of the site. Data Point 3 (Exhibit 2, Photo #3) describes the PFO wetlands present in seepage areas, where seepage of groundwater supports wetland hydrology, while Data Point 5 (Exhibit 2, Photo #8) characterizes the PFO wetlands in low-lying areas along stream systems, where wetland hydrology is supported by the high water table associated with the streams. Dominant plants within these PFO wetlands include *Platanus occidentalis* (American sycamore: FACW-[1]) and *Acer rubrum* (Red Maple: FAC) in the tree layer, *Ilex verticillata* (Common Winterberry: FACW+), *Lindera benzoin* (Northern Spicebush: FACW-), *Rosa multiflora* (Multiflora Rose: FACU), and red maple saplings in the shrub/sapling layer, and *Saxifraga micranthidifolia* (Lettuce-leaf Saxifrage: OBL), *Senecio aureus* (Golden Ragwort: FACW), *Toxicodendron radicans* (Poison Ivy: FAC), *Impatiens capensis* (Spotted Jewelweed: FACW), *Athyrium filix-femina* (Lady Fern: FAC), and *Carex crinita* (Fringed Sedge: OBL) in the herb layer. In some areas, no trees are actually rooted within these PFO wetlands due to their rocky nature and the presence of numerous braided channels, but such wetlands are still considered forested since a dense canopy from trees rooted around the edges of the wetlands is present.

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[1] According to the National List of Plant Species that Occur in Wetlands (Region 1 – Northeast), the estimated percent probability of occurrence in wetlands is 99% for Obligate Wetland plants (OBL), 67-99% for Facultative Wetland (FACW) plants, 34-66% for Facultative (FAC) plants, 1-33% for Facultative Upland (FACU) plants, and <1% for Obligate Upland (UPL) plants.

B. PSS wetlands are present primarily along the northernmost drainage and in the lower portion of the central drainage. These wetlands are considered PSS rather than PFO because they have few trees rooted within them, they are dominated by shrubs and tree saplings, and they occur in gaps in the canopy provided by the adjacent upland forest. Data Point 1 (Exhibit 2, Photo #11) describes these PSS wetlands, which derive their hydrology from both seepage and the high water table associated with the stream systems. *Alnus serrulata* (Brookside Alder: OBL), common winterberry, northern spicebush, red maple saplings, and multiflora rose are the dominant shrubs and saplings in these PSS wetlands. Limited areas of PSS wetlands are also present in the extreme northwestern corner of the site. The herbaceous dominants are similar to those present in the PFO wetlands.

C. Small areas of PEM wetlands, which are dominated by herbaceous plants and include few trees and shrubs, are present in the lower part of the northern drainage and along a drainage in the extreme northwestern part of the site, where maintenance of an open electrical line easement prevents the maturation of woody plants. Dominant plants in these wetlands include *Eupatorium fistulosum* (Joe-Pye-Weed: FACW), *Juncus effusus* (Soft Rush: FACW+), *Carex* spp. (sedges), and spotted jewelweed. These wetlands derive their hydrology from both seepage and the high water table associated with streams.

D. In addition to wetlands, other Jurisdictional Waters of the U.S. (i.e., intermittent and perennial streams) are present in the study area. None of the streams on the site are mapped as streams on the USGS topo map in Exhibit 1. However, these streams are supported by numerous seeps and springs (Exhibit 2, Photo #6), and we observed significant seepage and flow into most of these streams during our field work. Three main stream systems are present on the site (the aforementioned northern, central, and southern drainages). The northern and central drainages emanate from on-site springs in the western part of the site and flow northeastward through PFO and PSS wetlands before joining together and flowing off-site to the northeast (Exhibit 2, Photo #10). These streams consist of braided channels in many areas due to the abundance of boulders and islands of wetland vegetation. Approximately ½-inch of water was flowing in these streams during our field work. The southern drainage enters the site in its southwestern corner and flows east/northeastward, eventually flowing off the site (Exhibit 2, Photo #5). This stream consists of braided channels in some areas but is generally more clearly defined than the channels in the northern and central parts of the site, with 1-2 inches of flow present during our field work.

According to Shenandoah National Park staff, these three main stream systems contain flowing water year-round during a year with average precipitation. Given the amount of flow observed during our field work and the extent of seepage wetlands along these streams, it is WSSI's opinion that these streams are likely perennial (but see Part F below). A fourth reach of stream, delineated by flags J-1 through J-13 in the west-central part of the site, is also likely perennial (Exhibit 2, Photo #7. This reach of stream emanates from a spring near the western site boundary and eventually flows underground again,

probably emanating again at the head of the northern drainage (i.e., at flags I-27 and I-28).

Two smaller streams on the site are, in WSSI's opinion, likely intermittent due to the small amount of flow observed in these channels during our field work. The narrow stream marked by flags G-4 to G-11 and A-102 to A-107 (Exhibit 2, Photo #1) contained <1/4-inch of flow during our field work, while a stream within the PFO wetland system marked by flags A-58 to A-84 was similarly shallow (Exhibit 2, Photo #2).

E. In the boulder-strewn upper portions of the northern and central drainages, water in streams and wetlands sporadically flows underground for short distances before re-emerging. This phenomenon, coupled with the presence of numerous large boulders, complicated the delineation of the jurisdictional wetland boundaries somewhat. In several areas (indicated on Attachment I), WSSI flagged around the outer limits of where jurisdictional features are present, leaving some small upland islands present within the flagged areas.

F. Streams on the site were classified by WSSI as perennial or intermittent based on a routine examination of the characteristics of these streams in the field at the time of our wetland delineation (e.g., presence and depth of flow, presence/abundance of benthic macroinvertebrates, channel characteristics, and amount of flow received from seeps, springs, and tributaries). WSSI has conducted no intensive stream characterization with the specific intent of determining whether flow in these streams is actually perennial, intermittent, or ephemeral. Such a stream characterization, possibly including observations of instream flow conditions over a prolonged duration, would be required to make a conclusive determination.

G. The remainder of the site is upland-dominant. Some portions of the study area were investigated for the presence of jurisdictional features but were determined not to be Jurisdictional Wetlands or other Waters of the U.S. These areas either lack an ordinary high water mark and a defined bed and bank (and are therefore not jurisdictional streams) or fail to satisfy all three parameters (hydrophytic vegetation, wetland hydrology, and hydric soils) for a Jurisdictional Wetland. The majority of the site is dominated by upland forest, which is characterized by Data Point 2 (Exhibit 2, Photo #12) and non-wetland riparian forest, which is described by Data Point 4 (Exhibit 2, Photo #4). Data Point 6 (Exhibit 2, Photo #9) describes the upland forest present within the boulder-strewn area separating the northern and central drainages. These upland forests are dominated by *Liriodendron tulipifera* (Tulip-tree: FACU), *Magnolia tripetala* (Umbrella Magnolia: FACU), *Quercus rubra* (Northern Red Oak: FACU), *Quercus alba* (White Oak: FACU), *Tsuga canadensis* (Eastern Hemlock: FACU), *Betula lenta* (Sweet Birch: FACU), and *Betula alleghaniensis* (Yellow Birch: FAC).

H. Permits from the U.S. Army Corps of Engineers (COE) and Virginia's Department of Environmental Quality (DEQ) will be required to impact

wetlands on this site. The other "Waters of the U.S." in the study area (i.e., the streams) are also regulated by Section 401 and 404 of the Clean Water Act and cannot be disturbed without the appropriate permits, which may include permits from state and local agencies, as well as the COE, depending upon the extent and type of impacts.

Summary

In WSSI's opinion, Jurisdictional Wetlands and other Waters of the U.S. are present on this site, based on our site observations as described in this letter. We will forward this letter to the U.S. Army Corps of Engineers (COE) for a Jurisdictional Determination that will verify the extent of Jurisdictional Wetlands located on-site. If you have any questions, please call our office at 703-631-5800.

Limitations

This study is based on examination of the vegetation, soils, hydrology, and available reference documents. Field indicators can change with variations in hydrology and other factors. Therefore, our conclusions may vary significantly from future observation by others. This report assesses the potential for wetlands at the study area at the time of our review and does not address conditions prior to our review or at a given time in the future.

Our review and report have been prepared in accordance with generally accepted guidelines for the conduct of a survey for potential wetlands and for the conduct of a stream assessment. We make no other warranties, either expressed or implied, and our report is not a recommendation to buy, sell or develop the property.

We offer no opinion and do not purport to opine on the possible application of various building codes, zoning ordinances, other land use or platting regulations, environmental or health laws and other similar statutes, laws, ordinances, code and regulations affecting the possible use and occupancy of the Property for the purpose for which it is being used, except as specifically provided above.

The opinions set forth above are rendered only and exclusively for the benefit of the addressees and no other parties, successors or assigns. The foregoing opinions are based on applicable laws, ordinances, and regulations in effect as of the date hereof and should not be construed to be an opinion as to the matters set out herein should such laws, ordinances or regulations be modified, repealed or amended.

This document is solely for your benefit and is not be quoted in whole or in part or otherwise referred to in any statement or document (except for purposes of identification) nor is it to be filed with any governmental agency or other person, without the prior written consent of this firm, unless required by law.

This report does not constitute a jurisdictional determination of Waters of the United States since such determinations must be verified by the U.S. Army Corps of

Engineers or the Natural Resources Conservation Service (as applicable), and are subject to review by the U.S. Environmental Protection Agency; nor does it constitute a stream characterization determination since such determinations must be verified by the Commonwealth of Virginia's Department of Environmental Quality.

Sincerely,

WETLAND STUDIES AND SOLUTIONS, INC.

Stephen C. Rottenborn, Ph.D.
Senior Environmental Scientist

Mark Headly, P.W.S.
Vice President

Enclosures

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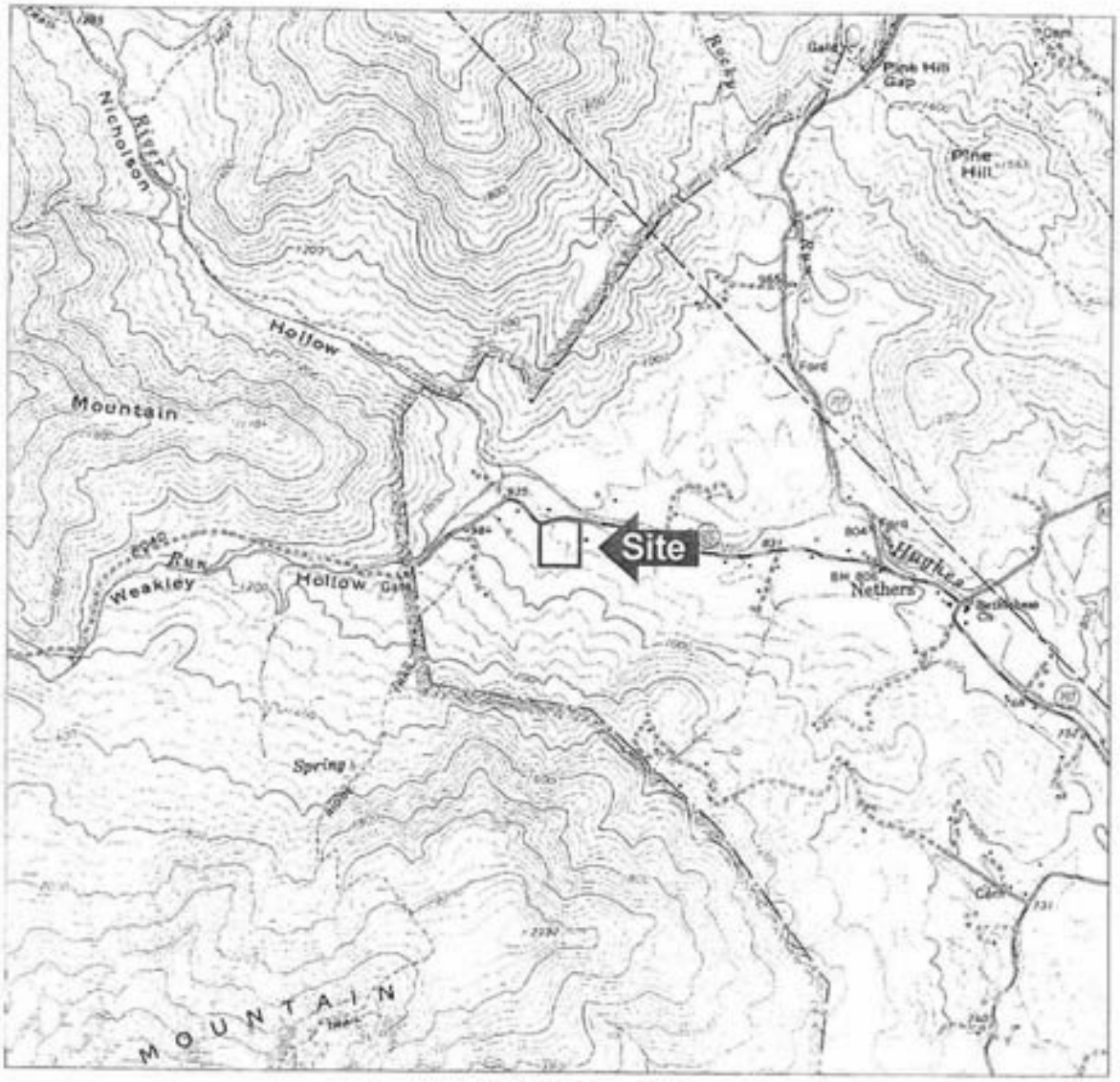


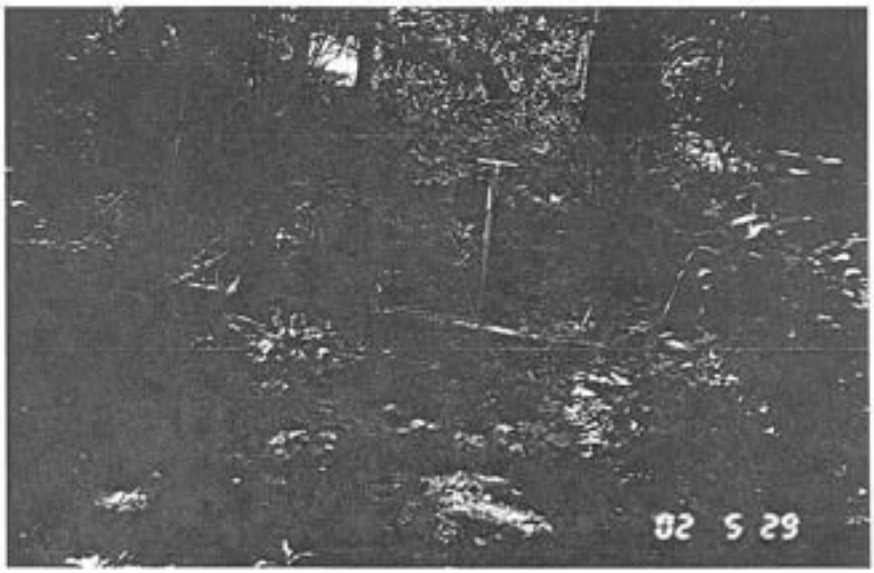
Vicinity / USGS Quad Map
Old Rag Mtn, VA 1984
Weakley Hollow Access Area
WSSI #9030
Scale: 1" = 2000'

Wetland Studies and Solutions, Inc.

Exhibit 1

WEAKLEY HOLLOW ACCESS AREA
WSSI #9030
EXHIBIT 2 - SITE PHOTOGRAPHS

#1. Looking southwest (upstream) along an intermittent stream in the southwestern corner of the study area. This stream contained less than ¼" of flowing water during our field work and is likely intermittent, in WSSI's opinion.



#2. Looking southwest (upstream) at another intermittent stream in the southwestern part of the site. This stream contained less than ¼" of flowing water during our field work and is likely intermittent, in WSSI's opinion.

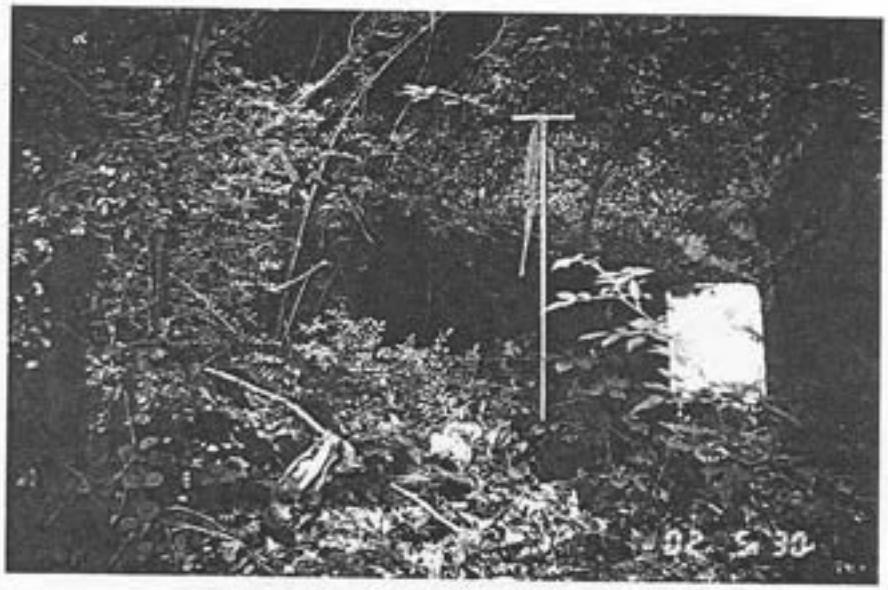
WEAKLEY HOLLOW ACCESS AREA
WSSI #9030
EXHIBIT 2 - SITE PHOTOGRAPHS

#3. Looking southwest at Data Point 3, which characterizes one of several seepage Palustrine Forested (PFO) wetlands in the southern part of the site.

#4. Looking southeast at Data Point 4, which characterizes the non-wetland riparian forest dominating the areas surrounding the streams and wetlands on the site. None of the three parameters for a Jurisdictional Wetland were satisfied at this data point.

WEAKLEY HOLLOW ACCESS AREA
WSSI #9030
EXHIBIT 2 - SITE PHOTOGRAPHS

#5. Looking west (upstream) along a perennial stream that flows across the southern part of the site. This stream contained 1-2" of flowing water during our field work and contained numerous benthic macroinvertebrates. In WSSI's opinion, this stream is likely perennial.



#6. Looking west (upslope) at a spring (within the hole visible here) in the western part of the site. The stream/wetland system that flows across the central part of the site begins at this and several other springs in the west-central part of the site.

WEAKLEY HOLLOW ACCESS AREA
WSSI #9030
EXHIBIT 2 - SITE PHOTOGRAPHS

#7. Looking east (downstream) along a reach of perennial stream that emanates from a spring in the west-central part of the site, then flows underground. This stream contained less than ½" of flowing water during our field work and is likely perennial, in WSSI's opinion.

#8. Looking east/northeast at Data Point 5, which describes the PFO wetlands in low-lying areas along stream systems, where wetland hydrology is supported by the high water table associated with the streams.

WEAKLEY HOLLOW ACCESS AREA
WSSI #9030
EXHIBIT 2 - SITE PHOTOGRAPHS

#9. Looking east/northeast at Data Point 6, which characterizes the upland forest present within the boulder-strewn area separating the northern and central drainages. None of the three parameters for a Jurisdictional Wetland were satisfied at this data point.

#10. Looking southwest (upstream) along a perennial stream that flows across the northern part of the site. This stream contained ½" of flowing water during our field work and is likely perennial in WSSI's opinion.

WEAKLEY HOLLOW ACCESS AREA
WSSI #9030
EXHIBIT 2 - SITE PHOTOGRAPHS

#11. Looking southwest at Data Point 1, which characterizes the Palustrine Scrub-Shrub (PSS) wetlands present within the central and northern drainages. These wetlands derive their hydrology from both seepage and the high water table associated with the stream systems.

#12. Looking north/northwest at Data Point 2, which characterizes the upland forest that dominates most of the site. None of the three parameters for a Jurisdictional Wetland were satisfied at this data point.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Weakley Hollow Access Area	Project No: 9030	Date: 30-May-2002
Applicant/Owner:	Shenandoah National Park		County: Madison
Investigators:	L. Giese, A. Mazurkiwecz		State: Virginia
			Plot ID: 1

Do Normal Circumstances exist on the site?	(Yes)	No	Community ID: Palustrine Scrub-Shrub (PSS) Wetlan
Is the site significantly disturbed (Atypical Situation:)?	Yes	(No)	Transect ID: Btn. A&B
Is the area a potential Problem Area?	Yes	(No)	Field Location:
(If needed, explain on the reverse side)			12' WNW of I-51

VEGETATION (USFWS Region No. 1)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Ilex verticillata	Shrub	FACW+	*Parthenocissus quinquefolia*	Herb	FACU
Winterberry,Common			Creeper,Virginia		
Viola sp.	Shrub	NI	*Boehmeria cylindrica*	Herb	FACW+
Violet			False-Nettle,Small-Spike		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 2/3 = 66.67%	FAC Neutral: 2/3 = 66.67% Numeric Index: 8/3 = 2.67

Remarks:
The percentage of plant species rated OBL, FACW, or FAC is greater than 50%; therefore, the vegetation is hydrophytic. Vegetation sampling was restricted to the area flagged as a wetland.

HYDROLOGY

NO Recorded Data(Describe in Remarks):
- N/A Stream, Lake or Tide Gauge
- N/A Aerial Photographs
- N/A Other

YES No Recorded Data

Field Observations

Depth of Surface Water:	= 1 *(in.)*
Depth to Free Water in Pit:	N/A *(in.)*
Depth to Saturated Soil:	N/A *(in.)*

Wetland Hydrology Indicators
Primary Indicators
- YES Inundated
- YES Saturated in Upper 12 Inches
- YES Water Marks
- NO Drift Lines
- NO Sediment Deposits
- YES Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- NO Oxidized Root Channels in Upper 12 Inches
- NO Water-Stained Leaves
- NO Local Soil Survey Data
- YES FAC-Neutral Test
- NO Other (Explain in Remarks)

Remarks:
Primary and secondary indicators of wetland hydrology were observed during our site visit.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Weakley Hollow Access Area	Project No: 9030	Date: 30-May-2002
Applicant/Owner:	Shenandoah National Park		County: Madison
Investigators:	L. Giese, A. Mazurkiwecz		State: Virginia
			Plot ID: 1

SOILS

Map Unit Name (Series and Phase): Unison loam, 2-7% slopes
Map Symbol: UnB Drainage Class:
Taxonomy (Subgroup):
Mapped Hydric Inclusion?
Field Observations Confirm Mapped Type? Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0-10"	A	7.5YR2.5/1	N/A	N/A	N/A	Sandy loam

Hydric Soil Indicators:

NO Histosol	NO Concretions
NO Histic Epipedon	NO High Organic Content in Surface Layer in Sandy Soils
NO Sulfidic Odor	NO Organic Streaking in Sandy Soils
NO Aquic Moisture Regime	NO Listed on Local Hydric Soils List
YES Reducing Conditions	NO Listed on National Hydric Soils List
YES Gleyed or Low Chroma Colors	NO Other (Explain in Remarks)

Remarks:
The low-chroma matrix with high-chroma mottles at a depth of 10" below the surface indicates that the soil is hydric. Auger refused by rock at 10".

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes)	No	Is the Sampling Point within the Wetland? (Yes) No
Wetland Hydrology Present?	(Yes)	No	
Hydric Soils Present?	(Yes)	No	

Remarks:
All three wetland criteria were satisfied at this data point, which characterizes the palustrine scrub-shrub wetland occuring in the northern and central drainage areas of the site.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Weakley Hollow Access Area	Project No: 9030	Date: 30-May-2002
Applicant/Owner:	Shenandoah National Park		County: Madison
Investigators:	L. Giese, A. Mazurkiwecz		State: Virginia
			Plot ID: 2

Do Normal Circumstances exist on the site?	(Yes) No	Community ID: Upland Forest
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	Transect ID: Btn. A&B
Is the area a potential Problem Area?	Yes (No)	Field Location:
(If needed, explain on the reverse side)		45' NW of I-16

VEGETATION (USFWS Region No. 1)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Liriodendron tulipifera	Tree	FACU	*Toxicodendron radicans*	Herb	FAC
Tree,Tulip			Ivy,Poison		
Sassafras albidum	Shrub	FACU-	*Acer rubrum*	Tree	FAC
Sassafras			Maple,Red		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 2/4 = 50.00%

FAC Neutral: 0/2 = 0.00%
Numeric Index: 14/4 = 3.50

Remarks:
The percentage of plant species rated OBL, FACW, or FAC equals 50%. Because this percentage must exceed 50% for the vegetation to be considered hydrophytic, the vegetation at this data point is not hydrophytic.

HYDROLOGY

NO Recorded Data(Describe in Remarks):
- N/A Stream, Lake or Tide Gauge
- N/A Aerial Photographs
- N/A Other

YES No Recorded Data

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	> 18 *(in.)*
Depth to Saturated Soil:	> 18 *(in.)*

Wetland Hydrology Indicators
Primary Indicators
- NO Inundated
- NO Saturated in Upper 12 Inches
- NO Water Marks
- NO Drift Lines
- NO Sediment Deposits
- NO Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- NO Oxidized Root Channels in Upper 12 Inches
- NO Water-Stained Leaves
- NO Local Soil Survey Data
- NO FAC-Neutral Test
- NO Other (Explain in Remarks)

Remarks:
No indicators of wetland hydrology were observed at this data point.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Weakley Hollow Access Area	Project No: 9030	Date: 30-May-2002
Applicant/Owner:	Shenandoah National Park		County: Madison
Investigators:	L. Giese, A. Mazurkiewcz		State: Virginia
			Plot ID: 2

SOILS

Map Unit Name (Series and Phase): Unison loam, 2-7% slopes
Map Symbol: UnB Drainage Class:
Taxonomy (Subgroup):
Mapped Hydric Inclusion?
Field Observations Confirm Mapped Type? Yes (No)

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance	Mottle Contrast	Texture, Concretions, Structure, etc
0-2	A	10YR3/2	N/A	N/A	N/A	Silt loam
2-5	B	10YR4/4	N/A	N/A	N/A	Loam
5-10	B	10YR4/6	7.5YR5/6	Few	Distinct	Loam, Rock fragments
10-15	B	7.5YR5/8	7.5YR4/6 5YR5/8	Few Few	Prominent Distinct	Loam
15-18	B	5YR5/8	7.5YR6/8	Many	Faint	Loam

Hydric Soil Indicators:

- NO Histosol
- NO Histic Epipedon
- NO Sulfidic Odor
- NO Aquic Moisture Regime
- NO Reducing Conditions
- NO Gleyed or Low Chroma Colors
- NO Concretions
- NO High Organic Content in Surface Layer in Sandy Soils
- NO Organic Streaking in Sandy Soils
- NO Listed on Local Hydric Soils List
- NO Listed on National Hydric Soils List
- NO Other (Explain in Remarks)

Remarks:
The soil lacks a low-chroma matrix (i.e., chroma 1, or chroma 2 with high-chroma mottles) at 10" or immediately below the A horizon, and no other hydric soil indicators were observed. Therefore, the soil at this data point is not hydric.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland? Yes (No)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	Yes (No)	

Remarks:
None of the three wetland criteria were satisfied at this data point, which characterizes the mature hardwood forest dominating the upland areas on most of the site.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Weakley Hollow Access Area	Project No: 9030	Date: 30-May-2002
Applicant/Owner:	Shenandoah National Park		County: Madison
Investigators:	L. Giese, A. Mazurkiwecz		State: Virginia
			Plot ID: 3

Do Normal Circumstances exist on the site?	(Yes)	No	Community ID: Palustrine Forested Wetland
Is the site significantly disturbed (Atypical Situation:)?	Yes	(No)	Transect ID: Btn. A&B
Is the area a potential Problem Area?	Yes	(No)	Field Location:
(If needed, explain on the reverse side)			18' SSE of A-47

VEGETATION (USFWS Region No. 1)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Saxifraga pensylvanica	Herb	OBL	*Carex sp.*	Herb	NI
Saxifrage,Swamp			Sedge, No Species Id		
Toxicodendron radicans	Herb	FAC	*Lindera benzoin*	Shrub	FACW-
Ivy,Poison			Spicebush,Northern		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 3/3 = 100.00%

FAC Neutral: 2/2 = 100.00%
Numeric Index: 6/3 = 2.00

Remarks:
The percentage of plant species rated OBL, FACW, or FAC is greater than 50%; therefore, the vegetation is hydrophytic. Vegetation sampling was restricted to the area flagged as a wetland.

HYDROLOGY

NO Recorded Data(Describe in Remarks):
- N/A Stream, Lake or Tide Gauge
- N/A Aerial Photographs
- N/A Other

YES No Recorded Data

Field Observations

Depth of Surface Water:	N/A *(in.)*
Depth to Free Water in Pit:	= 0 *(in.)*
Depth to Saturated Soil:	= 0 *(in.)*

Wetland Hydrology Indicators
Primary Indicators
- NO Inundated
- YES Saturated in Upper 12 Inches
- NO Water Marks
- NO Drift Lines
- NO Sediment Deposits
- NO Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- NO Oxidized Root Channels in Upper 12 Inches
- NO Water-Stained Leaves
- NO Local Soil Survey Data
- YES FAC-Neutral Test
- NO Other (Explain in Remarks)

Remarks:
Primary and secondary indicators of wetland hydrology were observed during our site visit.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Weakley Hollow Access Area	Project No: 9030	Date: 30-May-2002
Applicant/Owner:	Shenandoah National Park		County: Madison
Investigators:	L. Giese, A. Mazurkiwecz		State: Virginia
			Plot ID: 3

SOILS

Map Unit Name (Series and Phase): Unison loam, 2-7% slopes
Map Symbol: UnB Drainage Class:
Taxonomy (Subgroup):
Mapped Hydric Inclusion?
Field Observations Confirm Mapped Type? Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0-6	A	2.5YR3/2	N/A	N/A	N/A	Sandy loam
6-10	B	10YR4/1	N/A	N/A	N/A	Sandy loam
10-18	B	2.5Y3/1	N/A	N/A	N/A	Sandy loam

Hydric Soil Indicators:

- NO Histosol
- NO Histic Epipedon
- NO Sulfidic Odor
- NO Aquic Moisture Regime
- NO Reducing Conditions
- YES Gleyed or Low Chroma Colors
- NO Concretions
- NO High Organic Content in Surface Layer in Sandy Soils
- NO Organic Streaking in Sandy Soils
- NO Listed on Local Hydric Soils List
- NO Listed on National Hydric Soils List
- NO Other (Explain in Remarks)

Remarks:
The low-chroma matrix (i.e., chroma 1) in the layer immediately below the A horizon indicates that the soil is hydric.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	(Yes)	No	Is the Sampling Point within the Wetland? (Yes) No
Wetland Hydrology Present?	(Yes)	No	
Hydric Soils Present?	(Yes)	No	

Remarks:
All three wetland criteria were satisfied at this data point, which characterizes the palustrine forested seepage wetlands occuring in the seeps in the south and central areas of this site.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Weakley Hollow Access Area	Project No: 9030	Date: 30-May-2002
Applicant/Owner:	Shenandoah National Park		County: Madison
Investigators:	L. Giese, A. Mazurkiwecz		State: Virginia
			Plot ID: 4

Do Normal Circumstances exist on the site?	(Yes) No	Community ID:	Upland Riparian Forest
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	Transect ID:	Btn. A&B
Is the area a potential Problem Area?	Yes (No)	Field Location:	
(If needed, explain on the reverse side)		15' S of A-36	

VEGETATION (USFWS Region No. 1)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Lonicera japonica	Herb	FAC-	*Polystichum acrostichoides*	Herb	FACU-
Honeysuckle,Japanese			Fern,Christmas		
Lindera benzoin	Shrub	FACW-	*Acer rubrum*	Tree	FAC
Spicebush,Northern			Maple,Red		
Magnolia tripetala	Tree	FACU			
Magnolia,Umbrella					

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 2/5 = 40.00%

FAC Neutral: 1/3 = 33.33%

Numeric Index: 16/5 = 3.20

Remarks:
The percentage of plant species rated OBL, FACW, or FAC is less than 50%; therefore, the vegetation is upland dominant.

HYDROLOGY

NO Recorded Data(Describe in Remarks):
- N/A Stream, Lake or Tide Gauge
- N/A Aerial Photographs
- N/A Other

YES No Recorded Data

Field Observations

Depth of Surface Water:	N/A (in.)
Depth to Free Water in Pit:	> 18 (in.)
Depth to Saturated Soil:	> 18 (in.)

Wetland Hydrology Indicators

Primary Indicators
- NO Inundated
- NO Saturated in Upper 12 Inches
- NO Water Marks
- NO Drift Lines
- NO Sediment Deposits
- NO Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- NO Oxidized Root Channels in Upper 12 Inches
- NO Water-Stained Leaves
- NO Local Soil Survey Data
- NO FAC-Neutral Test
- NO Other (Explain in Remarks)

Remarks:
No indicators of wetland hydrology were observed at this data point.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Weakley Hollow Access Area	Project No: 9030	Date: 30-May-2002
Applicant/Owner: Shenandoah National Park		County: Madison
Investigators: L. Giese, A. Mazurkiwecz		State: Virginia
		Plot ID: 4

SOILS

Map Unit Name (Series and Phase): Unison loam, 2-7% slopes
Map Symbol: UnB Drainage Class:
Taxonomy (Subgroup):
Mapped Hydric Inclusion?
Field Observations Confirm Mapped Type? Yes (No)
Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0-4	A	2.5Y3/2	N/A	N/A	N/A	Silt loam
4-8	A	10YR3/2	N/A	N/A	N/A	Silt loam
8-13	B	10YR4/3	N/A	N/A	N/A	Silt loam
13-15	B	10YR4/2	7.5YR5/6	Few	Prominent	Silt loam

Hydric Soil Indicators:

- NO Histosol
- NO Histic Epipedon
- NO Sulfidic Odor
- NO Aquic Moisture Regime
- NO Reducing Conditions
- NO Gleyed or Low Chroma Colors
- NO Concretions
- NO High Organic Content in Surface Layer in Sandy Soils
- NO Organic Streaking in Sandy Soils
- NO Listed on Local Hydric Soils List
- NO Listed on National Hydric Soils List
- NO Other (Explain in Remarks)

Remarks:
Auger refused by rock at 15". The soil lacks a low-chroma matrix (i.e., chroma 1, or chroma 2 with high-chroma mottles) at 10" or immediately below the A horizon, and no other hydric soil indicators were observed. Therefore, the soil at this data point is not hydric.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland? Yes (No)
Wetland Hydrology Present?	Yes (No)	
Hydric Soils Present?	Yes (No)	

Remarks:
None of the three wetland criteria were satisfied at this data point, which characterizes the upland riparian forest along stream drainages in the southern and central areas of the site.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Weakley Hollow Access Area	Project No: 9030	Date: 30-May-2002
Applicant/Owner:	Shenandoah National Park		County: Madison
Investigators:	S. Rottenborn		State: Virginia
			Plot ID: 5

Do Normal Circumstances exist on the site?	(Yes)	No	Community ID: Palustrine Forested Wetland
Is the site significantly disturbed (Atypical Situation:)?	Yes	(No)	Transect ID: North of A
Is the area a potential Problem Area?	Yes	(No)	Field Location:
(If needed, explain on the reverse side)			10' NE of H-40

VEGETATION (USFWS Region No. 1)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Platanus occidentalis	Tree	FACW-	*Senecio aureus*	Herb	FACW
Sycamore,American			Ragwort,Golden		
Rosa multiflora	Shrub	FACU	*Saxifraga micranthidifolia*	Herb	OBL
Rose,Multiflora			Saxifrage,Lettuce-Leaf		
Ilex verticillata	Shrub	FACW+	*Toxicodendron radicans*	Herb	FAC
Winterberry,Common			Ivy,Poison		
Acer rubrum	Shrub	FAC	*Athyrium filix-femina*	Herb	FAC
Maple,Red			Fern,Subarctic Lady		

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 7/8 = 87.50%

FAC Neutral: 4/5 = 80.00%
Numeric Index: 20/8 = 2.50

Remarks:
The percentage of plant species rated OBL, FACW, or FAC is greater than 50%; therefore, the vegetation is hydrophytic. Vegetation sampling was restricted to the area flagged as a wetland.

HYDROLOGY

NO Recorded Data(Describe in Remarks):
- N/A Stream, Lake or Tide Gauge
- N/A Aerial Photographs
- N/A Other

YES No Recorded Data

Field Observations

Depth of Surface Water:	= .5 (in.)
Depth to Free Water in Pit:	N/A (in.)
Depth to Saturated Soil:	N/A (in.)

Wetland Hydrology Indicators
Primary Indicators
- YES Inundated
- YES Saturated in Upper 12 Inches
- YES Water Marks
- YES Drift Lines
- YES Sediment Deposits
- YES Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- NO Oxidized Root Channels in Upper 12 Inches
- YES Water-Stained Leaves
- NO Local Soil Survey Data
- YES FAC-Neutral Test
- NO Other (Explain in Remarks)

Remarks:
Multiple primary and secondary indicators of wetland hydrology were observed during our site visit.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site: Weakley Hollow Access Area	Project No: 9030	Date: 30-May-2002
Applicant/Owner: Shenandoah National Park		County: Madison
Investigators: S. Rottenborn		State: Virginia
		Plot ID: 5

SOILS

Map Unit Name (Series and Phase): Unison loam, 2-7% slopes
Map Symbol: UnB Drainage Class:
Taxonomy (Subgroup):
Mapped Hydric Inclusion?
Field Observations Confirm Mapped Type? Yes (No)

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0-6	A	10YR3/3	N/A	N/A	N/A	Sand

Hydric Soil Indicators:

NO Histosol	NO Concretions
NO Histic Epipedon	YES High Organic Content in Surface Layer in Sandy Soils
NO Sulfidic Odor	NO Organic Streaking in Sandy Soils
NO Aquic Moisture Regime	NO Listed on Local Hydric Soils List
NO Reducing Conditions	NO Listed on National Hydric Soils List
NO Gleyed or Low Chroma Colors	NO Other (Explain in Remarks)

Remarks:
Auger refused by rock at 6". Due to the sandy composition of the soil, color is not a good indicator of hydric conditions, but high levels of organic material were distributed evenly throughout the surface horizon.

WETLAND DETERMINATION

Hydrophytic Vegetation Present? (Yes) No	Is the Sampling Point within the Wetland? (Yes) No
Wetland Hydrology Present? (Yes) No	
Hydric Soils Present? (Yes) No	

Remarks:
All three wetland criteria were satisfied at this data point, which characterizes the palustrine forest in the west and central sections of the site.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Weakley Hollow Access Area	Project No: 9030	Date: 30-May-2002
Applicant/Owner:	Shenandoah National Park		County: Madison
Investigators:	S. Rottenborn		State: Virginia
			Plot ID: 6

Do Normal Circumstances exist on the site?	(Yes) No	Community ID: Upland Boulder Forest
Is the site significantly disturbed (Atypical Situation:)?	Yes (No)	Transect ID: North of A
Is the area a potential Problem Area?	Yes (No)	Field Location: 10' NE of H-64
(If needed, explain on the reverse side)		

VEGETATION (USFWS Region No. 1)

Dominant Plant Species(Latin/Common)	Stratum	Indicator	Plant Species(Latin/Common)	Stratum	Indicator
Quercus prinus	Tree	UPL	*Smilax rotundifolia*	Vine	FAC
Oak,Chestnut			Greenbrier,Common		
Magnolia tripetala	Shrub	FACU	*Smilacina racemosa*	Herb	FACU-
Magnolia,Umbrella			False-Solomon's-Seal,Feather		
Acer rubrum	Tree	FAC	*Parthenocissus quinquefolia*	Herb	FACU
Maple,Red			Creeper,Virginia		
Toxicodendron radicans	Herb	FAC			
Ivy,Poison					

Percent of Dominant Species that are OBL, FACW or FAC: (excluding FAC-) 3/7 = 42.86%

FAC Neutral: 0/4 = 0.00%

Numeric Index: 26/7 = 3.71

Remarks:
Vegetation sampling was restricted to the area not flagged as a wetland. The percentage of plant species rated OBL, FACW, or FAC is less than 50%; therefore, the vegetation is upland dominant.

HYDROLOGY

NO Recorded Data(Describe in Remarks):
- N/A Stream, Lake or Tide Gauge
- N/A Aerial Photographs
- N/A Other

YES No Recorded Data

Field Observations

Depth of Surface Water:	N/A (in.)
Depth to Free Water in Pit:	> 12 (in.)
Depth to Saturated Soil:	> 12 (in.)

Wetland Hydrology Indicators

Primary Indicators
- NO Inundated
- YES Saturated in Upper 12 inches
- NO Water Marks
- NO Drift Lines
- NO Sediment Deposits
- NO Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
- NO Oxidized Root Channels in Upper 12 Inches
- NO Water-Stained Leaves
- NO Local Soil Survey Data
- NO FAC-Neutral Test
- NO Other (Explain in Remarks)

Remarks:
No indicators of wetland hydrology were observed at this data point.

DATA FORM
ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site:	Weakley Hollow Access Area	Project No: 9030	Date: 30-May-2002
Applicant/Owner:	Shenandoah National Park		County: Madison
Investigators:	S. Rottenborn		State: Virginia
			Plot ID: 6

SOILS

Map Unit Name (Series and Phase): Unison loam, 2-7% slopes
Map Symbol: UnB Drainage Class:
Taxonomy (Subgroup):
Mapped Hydric Inclusion?
Field Observations Confirm Mapped Type? Yes (No)

Profile Description

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Color (Munsell Moist)	Mottle Abundance/Contrast		Texture, Concretions, Structure, etc
0-12	A	2.5YR2.5/2	N/A	N/A	N/A	Silt loam

Hydric Soil Indicators:

NO Histosol	NO Concretions
NO Histic Epipedon	NO High Organic Content in Surface Layer in Sandy Soils
NO Sulfidic Odor	NO Organic Streaking in Sandy Soils
NO Aquic Moisture Regime	NO Listed on Local Hydric Soils List
NO Reducing Conditions	NO Listed on National Hydric Soils List
NO Gleyed or Low Chroma Colors	NO Other (Explain in Remarks)

Remarks:
Auger refused by rock at 12". The soil lacks a low-chroma matrix (i.e., chroma 1, or chroma 2 with high-chroma mottles) at 10" or immediately below the A horizon, and no other hydric soil indicators were observed. Therefore, the soil at this data point is not hydric.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes (No)	Is the Sampling Point within the Wetland?	Yes (No)
Wetland Hydrology Present?	Yes (No)		
Hydric Soils Present?	Yes (No)		

Remarks:
None of the three wetland criteria were satisfied at this data point, which characterizes the upland forest in the boulder-strewn area between the northern and central wetland/stream drainages.

EXHIBIT 4
WEAKLEY HOLLOW ACCESS AREA
WSSI #9030

VASCULAR PLANTS OBSERVED IN STUDY AREA
(LISTED ALPHABETICALLY)

Latin Name	Common Name
Acer pensylvanicum	Striped Maple
Acer rubrum	Red Maple
Achillea millefolium	Yarrow
Agrimonia pubescens	Hairy Agrimony
Ailanthus altissima	Tree of Heaven
Albizia julibrissin	Mimosa
Allium vineale	Field Garlic
Alnus serrulata	Brookside Alder
Ambrosia artemisiifolia	Annual Ragweed
Ambrosia trifida	Great Ragweed
Amelanchier arborea	Common Serviceberry
Amphicarpa bracteata	Hog Peanut
Andropogon virginicus	Broom Sedge
Anthoxanthum odoratum	Sweet Vernal Grass
Arisaema triphyllum	Jack-in-the-Pulpit
Asimina triloba	Pawpaw
Asplenium platyneuron	Ebony Spleenwort
Aster divaricatus	White Wood Aster
Athyrium filix-femina	Subarctic Lady Fern
Berberis thunbergii	Japanese Barberry
Betula alleghaniensis	Yellow Birch
Betula lenta	Sweet Birch
Bidens sp.	Beggar-Ticks
Boehmeria cylindrica	Small-spike False-Nettle
Botrychium virginianum	Rattlesnake Fern
Calystegia sepium	Hedge Bindweed
Carex crinita	Fringed Sedge
Carex frankii	Frank's Sedge
Carex lurida	Shallow Sedge
Carex vulpinoidea	Fox Sedge
Carpinus caroliniana	American Hornbeam
Carya glabra	Pignut Hickory
Cassia fasciculata	Large-flowered Partridge Pea
Ceanothus americanus	New Jersey Tea
Celastrus orbiculata	Oriental Bittersweet
Cercis canadensis	Redbud
Chenopodium album	Pigweed
Chimaphila maculata	Striped Wintergreen
Chrysanthemum leucanthemum	Oxeye Daisy
Cichorium intybus	Chickory
Cimicifuga racemosa	Black Snakeroot

EXHIBIT 4
WEAKLEY HOLLOW ACCESS AREA
WSSI #9030

VASCULAR PLANTS OBSERVED IN STUDY AREA
(LISTED ALPHABETICALLY)

Latin Name	Common Name
Cinna arundinacea	Stout Wood-Reedgrass
Circaea lutetiana	Dwarf Enchanter's Nightshade
Clematis virginiana	Virginia Virgin's-Bower
Cornus alternifolia	Alternate-Leaved Dogwood
Cornus florida	Flowering Dogwood
Corylus americana	American Hazelnut
Dactylis glomerata	Orchard Grass
Daucus carota	Queen Anne's Lace
Desmodium nudiflorum	Naked-flowered Tick-Trefoil
Dichanthelium clandestinum	Deertongue Grass
Dioscorea villosa	Wild Yam
Diospyros virginiana	Common Persimmon
Duchesnea indica	Indian Strawberry
Elaeagnus umbellata	Autumn Olive
Erigeron annuus	Daisy Fleabane
Eupatorium fistulosum	Joe Pye Weed
Fagus grandifolia	American Beech
Festuca pratensis	Meadow Fescue
Fragaria virginiana	Wild Strawberry
Fraxinus pennsylvanica	Green Ash
Galium circaezans	Wild Licorice
Galium triflorum	Sweet-scented Bedstraw
Geranium maculatum	Wild Geranium
Geum canadense	White Avens
Glyceria striata	Fowl Manna Grass
Gnaphalium obtusifolium	Cudweed
Goodyera pubescens	Downy Rattlesnake Plantain
Hamamelis virginiana	Witch Hazel
Heuchera americana	Alumroot
Hieracium venosum	Rattlesnake Weed
Hieracium pratense	Field Hawkweed
Houstonia purpurea	Large Houstonia
Hypericum perforatum	Common St. John's Wort
Ilex opaca	American Holly
Ilex verticillata	Winterberry
Impatiens capensis	Spotted Touch-Me-Not
Juncus effusus	Soft Rush
Juncus tenuis	Slender Rush
Juniperus virginiana	Eastern Red-Cedar
Kalmia latifolia	Mountain Laurel
Lactuca canadensis	Wild Lettuce

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Latin Name	Common Name
Laportea canadensis	Wood Nettle
Lepidium virginicum	Common Peppergrass
Lespedeza cuneata	Chinese Bush-Clover
Lindera benzoin	Spicebush
Liriodendron tulipifera	Tulip Tree
Lonicera japonica	Japanese Honeysuckle
Lycopodium digitatum	Running Cedar
Lycopus virginicus	Virginia Bugleweed
Lysimachia quadrifolia	Whorled Loosestrife
Magnolia tripetala	Umbrella Magnolia
Medeola virginiana	Indian Cucumber Root
Microstegium vimineum	Nepal Microstegium
Mitchella repens	Partridge Berry
Nyssa sylvatica	Black Gum
Onoclea sensibilis	Sensitive Fern
Osmunda cinnamomea	Cinnamon Fern
Oxalis stricta	Yellow Wood Sorrel
Parthenocissus quinquefolia	Virginia Creeper
Paulownia tomentosa	Royal Paulownia
Perilla frutescens	Beef-Steak Plant
Phryma leptostachya	Lopseed
Pinus virginiana	Virginia Pine
Pinus strobus	White Pine
Plantago rugelii	Broad-leaved Plantain
Platanus occidentalis	American Sycamore
Poa pratensis	Kentucky Bluegrass
Podophyllum peltatum	May Apple
Polygonatum biflorum	Smooth Solomon's-Seal
Polygonum persicaria	Lady's Thumb
Polystichum acrostichoides	Christmas Fern
Potentilla canadensis	Dwarf Cinquefoil
Prunella vulgaris	Self-heal
Prunus serotina	Black Cherry
Pycnanthemum tenuifolium	Narrow-leaved Mountain Mint
Pyrus communis	Common Pear
Quercus alba	White Oak
Quercus marilandica	Blackjack Oak
Quercus prinus	Chestnut Oak
Quercus rubra	Northern Red Oak
Ratibida pinnata	Gray-headed Coneflower
Rhus copallina	Dwarf Sumac

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Latin Name	Common Name
Rhus glabra	Smooth Sumac
Rhus typhina	Staghorn sumac
Robinia pseudo-acacia	Black Locust
Rosa multiflora	Multiflora Rose
Rubus argutus	Serrate-leaf Blackberry
Rubus occidentalis	Black Raspberry
Rubus phoenicolasius	Wineberry
Rumex crispus	Curly Dock
Sambucus canadensis	American Elderberry
Sanguinaria canadensis	Bloodroot
Sanicula canadensis	Canadian Black-Snakeroot
Sassafras albidum	Sassafras
Saxifraga micranthidifolia	Lettuce-Leaf Saxifrage
Senecio aureus	Golden Ragwort
Sericocarpus asteroides	Toothed White-topped Aster
Smilacina racemosa	False Solomon's-Seal
Smilax rotundifolia	Common Greenbrier
Solidago altissima	Tall Goldenrod
Stellaria media	Common Chickweed
Symphoricarpos orbiculatus	Coral-Berry
Taraxacum officinale	Common Dandelion
Thelypteris noveboracensis	New York Fern
Tilia americana	American Basswood
Tovara virginiana	Jumpseed
Toxicodendron radicans	Poison Ivy
Trifolium campestre	Low Hop Clover
Trifolium pratense	Red Clover
Trifolium repens	White Clover
Trillium grandiflorum	Large-Flowered Trillium
Tsuga canadensis	Eastern Hemlock
Ulmus americana	American Elm
Uvularia perfoliata	Perfoliate Bellwort
Uvularia sessilifolia	Sessile-Leaf Bellwort
Vaccinium pallidum	Lowbush Blueberry
Vaccinium stamineum	Deerberry
Veratrum viride	American False-Hellebore
Veronica officinalis	Common Speedwell
Veronica serpyllifolia	Thyme-Leaved Speedwell
Viburnum acerifolium	Maple-Leaf Viburnum
Viburnum dentatum	Arrow-wood

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Latin Name	Common Name
Viburnum prunifolium	Blackhaw
Viola papilionacea	Common Blue Violet
Vitis aestivalis	Summer Grape
Woodwardia areolata	Netted Chainfern